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22.(Amended herein) The sunglass lens according to claim 21, wherein said fourth polarizing ~~filter~~ layer is molecularly bonded between said ~~first~~ third and ~~second~~ fifth CR-39® lenses to avoid haze and delamination.

23.(Amended herein) The sunglass lens according to claim 20, wherein said ~~first~~ third and ~~second~~ fifth ophthalmic plastic layers are colorized with a color discriminating grey tint~~, and the~~ that limits average blue light transmission of said lens ~~is~~ to less than 7%.

24-40.(herein canceled)

REMARKS

Claims 2, 5, 9, 11, 13, 18, 19 and 24-40 are herein canceled, and claims 1, 3, 4, 6-8, 10, 12, 14-17, 20-23 are amended, thus claims 1, 3-4, 6-8, 10, 12, 14-17 and 20-23 remain pending.

The Examiner objected to the Specification on page 7 for drawing a distinction between metallic and dielectric coatings and then inferring that Titanium Oxide is the latter. The distinction itself is well-recognized in the optical coating industry, as most metallic reflectors are made by applying a thin metal film to a highly polished glass substrate. Titanium Oxide, TiO3, is indeed a dielectric material featuring dielectric constant k=20-85. See, http://www.semiconductorglossary.com. Thus, it is not thought that any correction is required.

The Examiner objected to the use of the term CR-39 throughout the specification without the appropriate trademark designation, and this designation has been added throughout the specification and in remaining claims 3, 14, 17 and 22.

The Examiner objected to claims 4, 15 and 19 for reciting polycarbonate ophthalmic layers which contradicts the base claim. The dependency of claims 4 and 15 has been changed to correct the problem, and claim 19 is herein canceled.

The first and second ophthalmic layers of claims 12 and 14-16 and 21-23 have been corrected to third and fifth layers, respectively, and the recited elements are made consistent in claims 20-23 to correct these antecedent bases problem.

The duplicitive word –said– has been removed from claim 14.

The Examiner objected to claim 18 as failing to further limit its parent claim, and claim 18 is herein canceled.

The Examiner rejected claims 1-23 under 35 U.S.C. §112, first paragraph, for failing to comply with the enablement requirement. Regarding Claims 2-4 and 7-23, the Examiner contends that the Applicant must identify the chemical name or structure of the blue blocking amber tints and color-discriminating grey tints featured in the present invention in order for one skilled in the art to make and use the invention. Applicant disagrees. The enablement requirement of the first paragraph of 35 U.S.C. 112 requires that the patent specification enable those skilled in the art to make and use the full scope of the claimed invention without undue experimentation based on the underlying facts. Genentech, Inc. v. Novo Nordisk A/S, 42 USPQ2d 1001, 1004 (Fed. Cir. 1997); In re Wright, 27 USPQ2d 1510 1513 (Fed. Cir. 1993); and In re Vaeck, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991).

In the present case, when ordering lens blanks, Applicant specifies blue-blocking amber or grey tint, much the same way that a consumer would purchase sunglasses. However, Applicant neither knows nor needs to know the chemical composition of the tints to fabricate their

inventive lens using the tinted lens blanks. Applicant has simply found the two tints that give the desired profile in combination with the entire lens sandwich. Other factors to be considered when evaluating whether there is undue experimentation include: 1) the quantity of experimentation necessary, 2) the amount of direction or guidance presented, 3) the presence or absence of working examples, 4) the nature of the invention, 5) the state of the prior art, 6) the relative skill of those in the art, 7) the predictability or non predictability of the art, and 8) the breadth of the claims. In re Wands, 8 USPQ2d 1400 (Fed. Cir. 1988). In the present case, no experimentation is necessary because lens blanks in the two tints can readily be ordered from any lens supplier simply by specifying blue-blocking amber or grey tint, the nature of the invention does not require any particular formula for the tints, the prior art is replete with guidance if one were inclined to formulate the tints on their own[1], and the breadth of the claims is exactly commensurate with the specification in compliance with In re Wands. Thus, Applicant submits that the specification would enable those skilled in the art to make and use the full scope of the invention as claimed in claims 1-23 without undue experimentation based on the underlying facts.

Regarding Claims 1, 5 and 6, the Examiner contends that the phrase "substantially 100% of UV-A & B light is absorbed to at least 400nm" requires a substance that absorbs light, and that

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[1] See, for instance, United States Patent No. 4,878,748 entitled "Ultraviolet Radiation and Blue Light Blocking Polarizing Lens", issued November 7, 1989. United States Patent No. 4,952,046 entitled "Ultraviolet Radiation and Blue Light Blocking Polarizing Lens", issued March 21, 1995. United States Patent No. 5,400,175 entitled "Ultraviolet Radiation and Blue Light Blocking Polarizing Lens", issued March 21, 1995. United States Patent No. 5,177,509 entitled "Ultraviolet Radiation and Blue Light Blocking Polarizing Lens", issued January 5, 1993, and United States Patent 5,682,220 by Sherman et al. issued October 28, 1997 for "Vision directing sunglasses ."

the substance is not disclosed. However, the substance is clearly disclosed. The specification states that a " polarizing filter between two-layers of amber or grey ophthalmic CR-39® (plastic) and/or impact resistant polycarbonate *absorbs* 100% of ultraviolet light and reduces visible blue light transmission to less than 7%. Applicant submits that the "substance" is clearly disclosed.

Finally, with regard to claims 1-23, the Examiner also contends that the phrases "substantially 100% of UV-A & B light is absorbed to at least 400nm" and "at least 99% absorption of blue light" are unclear inasmuch as some light is reflected and not absorbed. Applicant has amended the claims in accordance with the Examiner's suggestion to change "absorb" to –block–, thereby eliminating the absorption/reflectance distinction.

The Examiner also rejected claims 1-23 under 35 U.S.C. §112, second paragraph, for incorporating a trademark (CR-39®). Frank Strain was one of the two inventive chemists at PPG who developed and patented allyl diglycol carbonate (CR-39 monomer) in 1940. It was then called CR-39 as an abbreviation for Columbia Resin #39 because it was the 39th resin developed at the Columbia Laboratories, In Ohio. The formula has since become public domain, and there are a large number of manufacturers in various countries of "CR-39" optical lenses, there are a large number of suppliers of eyeglasses with "CR-39 lenses", and "CR-39" is widely understood by those skilled in the art as a "special polymer developed for use in eyeglasses", "optical quality plastic" and "CR-39 plastic lenses", and in the present industry such lenses are invariably referred to generically as CR-39 rather than by the formulation Allyl Diglycol Carbonate. Applicant notes that PPG no longer has a registered trademark except for stylized versions of CR-39. The term CR-39 as claimed is unquestionably indicative of a type of plastic to those skilled in the art and not a source of plastic as the Examiner suggests, and *Ex Parte Simpson* is inapposite. In

light of the general understanding of the term in the relevant industry, the use of the term in claims 1-23 is compliant with 35 U.S.C. §112, second paragraph.

The Examiner also objected to Claims 1 and 8 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,145,984 to Farwig issued November 14, 2000. According to the Examiner, Farwig '984 discloses each and every element of claims 1 and 8, inherently including a dielectric mirror (citing column 5, lines 49-62). Farwig '984 does disclose a layered lens structure with two plastic lens layers sandwiching a polarizing layer, at least one of the plastic layers being coated with a trichroic contrast-enhancer. Farwig suggests that the other plastic layer might be a color-neutralizing tint (see column 7, lines 58-64). It is important to note that the trichroic color enhancer of Farwig '984 seeks to *amplify* light transmission within each of three maximum-transmission wavelength bands of 610-650 nm, 480-520 nm, and 420-460 nm, each of said maxima having a light transmission value at least 125%. The amplified transmission would actually increase the risk of macular degeneration, exactly the opposite intent and effect of the present lens.

The stated object of the present lens is a balanced light transmission profile optimized for use on the water in which two specific-color-tinted lens layers sandwich a polarizing layer, and a multilayer dielectric layer theratop reduces light transmission by an additional 1-3 percent in the 500-600 nm range. Claim 1 is herein amended to clearly recite two amber-tinted lens layers sandwich a polarizing layer, and the multilayer dielectric layer. This particular sandwich configuration blocks greater than 99% of UV light as well as blue light to at least 475 nm, again these profiles being optimum for use on the water. Farwig '984 does not teach or suggest the two amber-tinted lens layers sandwiching a polarizing layer, and the multilayer dielectric. Indeed,

this contradicts Farwig's attempt to *amplify* light transmission within the 610-650 nm, 480-520 nm, and 420-460 nm ranges by use of a trichroic layer offset by a neutral-tinted layer. More specifically, claim 1 as amended clearly recites a "multilayer dielectric mirror for reducing glare and overall light transmission...said dielectric mirror comprising a plurality of angularly displaced thin film layers" a "first layer of ophthalmic plastic colorized with high-contrast blue-blocking amber-tint", a second layer of [amber] ophthalmic plastic" and "a polarizing layer encapsulated [there]between." It is this recited configuration which yields "a balanced light transmission profile in which substantially 100% of UV-A & B light is blocked to at least 400nm, and average blue light transmission of said lens is less than 0.4%." Farwig '984 does not teach or suggest the two-blue-blocking amber layers, nor the mutlilayer dielectric, nor the combination of the foregoing with the encapsulated polarizing layer, and Farwig cannot achieve the specified light transmission profile It is submitted that claim 1 as amended is patentably distinguished.

Should the Examiner questions the synergy of the recited layers in achieving the profile, or the advantage of that particular profile for watermen, Applicant encloses herewith a sample pair of sunglasses bearing the lens recited in claim 1. Applicant also encloses a letter from one of the named inventors to a business consultant outlining the superior comparative performance of the lens relative to other commercial brands, and the significant commercial acceptance which has resulted. The lens has the highest known rating for total eye protection (measured by effectiveness in blocking UV, blue, IR and side glare), and has been endorsed by the Wilmer eye institute. Other lenses geared toward preventing macular degeneration typically sacrifice their contrast or visible light transmission, but the subject lens offers such visual acuity that it is

currently in use by the Maryland State Police SWAT and sniper teams. A comparison of the enclosed sunglasses will show the difference, and comparative test results were provided in the application as filed to quantify the difference as against other commercial sunglasses.

Claim 8 is rewritten in independent format to recite colorization of the plastic layers with a color discriminating grey tint (rather than a blue-blocker), and the average *blue light transmission* of said lens is less than 7%. Contrary to the Examiner's assertion, the 7% transmission of claim 8 applies only to blue light, as specified, and cannot be ratioed with all other wavelengths to arrive at an an "overall" 5% blue light transmission which the Examiner equates with Farwig '984 (Examiner's paragraph 17). Again, Farwig '984 does not teach or suggest the two grey tinted layers, nor the mutlilayer dielectric, nor the combination of the foregoing with the encapsulated polarizing layer, and Farwig cannot achieve the specified light transmission profile. It is submitted that claim 8 as amended is patentably distinguished as well.

The Examiner further rejected Claims 1-3, 5, 6 and 9 under 35 U.S.C. §103(a) as being obvious over Sternbergh (5694240) in light of Johanson et al. (4878748). Sternbergh '240 discloses a dielectric mirror coating a substrate layer of ophthalmic plastic for reducing transmittance of low-wavelength radiation up to 380 nm to about 1% or lower, while transmitting visible light. This is but two of the layers of the present lens, which explains why Sternbergh '240 cannot eliminate UV-A & B light to at least 400nm as required by claim 1 of the present application. Still, the Examiner combines Johanson et al. '748 which has...

(a) a first and second layer of ophthalmic plastic

(b) a polarized layer laminated between the first and second layer of ophthalmic plastic

(c) ophthalmic plastic layers colorized with a high-contrast blue-blocking amber tint (Examiner contends that the Johansen method inherently has an average blue light transmission of less than %.04)

(d) ophthalmic plastic layers made of CR-39®

Johanson et al. '748 does not teach any particular tints for either of the two lens layers, nor the multi-layer dielectric mirror coating.

It is well settled that an inventive combination cannot be anticipated by finding individual features separately in the prior art and combining them in a piecemeal manner to show obviousness. See, In re Kamm and Young, 17 USPQ 298, affd. (Court held that "The rejection here runs afoul of a basic mandate inherent in section 103 - that a piecemeal reconstruction of the prior art patents in the light of appellants disclosure shall not be the basis for a holding of obviousness. See, also, In re Rothermel, 47 CCPA 866, 870, 276 F.2d 393, 396, 125 USPQ 328, 331 (1960). The Examiner contends that one skilled in the art would combine a dielectric mirror as in Sternbergh '240 with the layers of Johanson et al. '748 to further protect the retina. However, the combination falls short of teaching how to incorporate a dielectric mirror in the particular sandwich configuration of the present invention, and especially how to do it in such as way as to produce a balanced light transmission profile whereby said layers are arranged to provide a balanced light transmission profile in which substantially 100% of UV-A & B light is blocked to at least 400nm, and average blue light transmission of said lens is less than 0.4%. Of the thousands of potential lens configurations and tint combinations, it would take prolonged

experimentation to arrange and rearrange the disparate teachings of Sternbergh '240 and Johanson et al. '748 to block UV, blue, IR and side glare as in the present invention, and still the combination would lack the particular amber tint of *both* lens layers necessary to perfect the transmission profile recited in claim 1. Thus claim 1 and dependent claims 2-3, 5 and 6 are patentably distinguished in light of the amendments thereto. Claim 9 is canceled.

The Examiner rejected Claims 4 and 7 under 35 U.S.C. §103(a) as being obvious over Sternbergh (5694240), Johanson et al. (4878748) and Gupta (5702819) or Evans (6220703), respectively (citing Gupta for the use of polycarbonate and Evans for molecular bonding). However, neither of Gupta '819 or Evans '703 add anything insofar as the particular sandwich layers or tint (amber) of *both* lens layers, and thus claims 4 and 7 are distinguished fro the same reasons set forth above.

The Examiner rejected Claims 10-12 under 35 U.S.C. §103(a) as being obvious over Sternbergh (5694240), Johanson et al. (4878748) and Larson (6,334,680) (citing Larson for the use of a hydrophobic overcoat). However, this again is piecemeal combining of individual features of the prior art and runs afoul of the basic mandate inherent in section 103 - that piecemeal reconstruction shall not be the basis for a holding of obviousness. In re Rothermel, 47 CCPA 866, 870, 276 F.2d 393, 396, 125 USPQ 328, 331 (1960). "Improvement over prior art, even though it be simple or involves only a reversing of certain parts, is patentable unless prior art shows that improvement is obvious." Id. The present is a specific layered lens configuration to attain a predetermined profile. The invention of claim 10 was unobvious at the time it was made, especially in light of the fact that Larson '680 proposes a hydrophobic overcoat for a lens wafer containing a rare earth oxide such as neodymium that provides relatively high light

transmittancy at 450 nm, 540 nm, and 610 nm, and relatively low light transmittency at 500 nm and at 580 nm. Just as with a trichroic enhancer, this transmission increases the risk of macular degeneration, exactly the opposite intent and effect of the present lens. None of Sternbergh '240, Johanson et al. '748 or Larson (6,334,680) add anything insofar as the particular sandwich layers or tints (claim 10 being amber) of *both* lens layers, and thus claims 10-12 are distinguished for the same reasons set forth above.

The Examiner similarly rejected Claims 13, 14 and 16 under 35 U.S.C. §103(a) as being obvious over Sternbergh (5694240), Johanson et al. (4878748), Larson (6,334,680) in further view of Evans (6220703) (citing Evans for molecular bonding). However, Evans '703 add s nothing insofar as the particular sandwich layers or blue-blocking amber tint of *both* lens layers, and thus claims 14 and 16 are distinguished fro the same reasons set forth above. Claim 13 is canceled.

The Examiner rejected Claim 15 under 35 U.S.C. §103(a) as being obvious over Sternbergh (5694240), Johanson et al. (4878748), Larson (6,334,680), Evans (6220703) and Gupta (5702819) (citing Gupta for the use of polycarbonate). However, Gupta '819 adds nothing insofar as the particular sandwich layers or tints (grey or amber) of *both* lens layers, and thus claim 15 is distinguished fro the same reasons set forth above.

The Examiner rejected Claims 17, 18 and 23 under 35 U.S.C. §103(a) as being obvious over Johanson et al. (4878748) in view of Farwig '984. However, Farwig '984 does not disclose the light transmission profile of the present lens, as recited in claim 17: "a balanced light transmission profile in which substantially 100% of UV-A & B light is blocked to at least 490nm." Again, Farwig '984 teaches a trichroic enhancer that amplifies light transmission

within each of three maximum-transmission wavelength bands of 610-650 nm, 480-520 nm, and 420-460 nm, each of said maxima having a light transmission value at least 125%. The amplified transmission would actually increase the risk of macular degeneration, exactly the opposite intent and effect of the present lens. The lens of claim 17 hits its profile with a sandwich comprising a grey-tinted lens layers sandwiching a polarizing layer, and a dielectric layer theratop. Neither Farwig '984 nor Johanson et al. '748 not teach the particular grey tint for both of the two lens layers, *with* the sandwiched polarizing layer, dielectric mirror coating, and hydrophobic coating. Thus, the combination of Farwig '984 and Johanson et al. '748 still does not rise to the same configuration nor the light transmission profile as recited in claims 17 and 23, it is submitted that these claims are patentably distinguished.

Claims 18 and 19 are canceled herein.

The Examiner rejected Claims 20 and 21 under 35 U.S.C. §103(a) as being obvious over Johanson et al. (4878748), Farwig '984 and Sternbergh (5694240). Again, Sternbergh '240 shows but two of the layers of the present lens, which explains why Sternbergh '240 cannot eliminate UV-A & B light to at least 400nm as required by claim 1 of the present application. Farwig '984 and Johanson et al. '748 likewise lack the configuration and light transmission profile as recited in claims 20 and 21, and thus the combination falls short of teaching how to incorporate a dielectric mirror in the particular sandwich configuration of the present invention, let alone how to do it in such as way as to produce a balanced light transmission profile in which substantially 100% of UV-A & B light is blocked to at least 490nm. Consequently, claims 20 and 21 are further distinguished.

The Examiner similarly rejected Claim 22 under 35 U.S.C. §103(a) as being obvious over Johanson et al. (4878748), Farwig '984 and Sternbergh (5694240) in further view of Evans (6220703) (citing Evans for molecular bonding). However, Evans '703 adds nothing insofar as the particular sandwich layers or grey tint of *both* lens layers, and thus claim 22 is distinguished fro the same reasons set forth above.

All of pending claims 1, 3-4, 6-8, 10, 12, 14-17 and 20-23 as herein amended are patentably distinguished and in all other respects should be in condition for allowance. A Notice to this effect is respectfully requested.

Respectfully submitted,

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